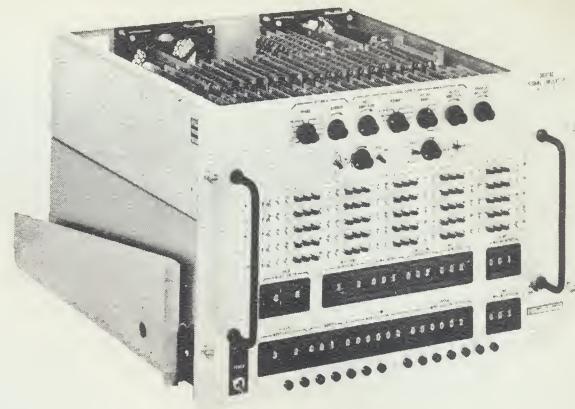


MODEL 55



MODEL 56

### DIGITAL SIGNAL SIMULATORS

#### SERIES 50

Computer Logic Corporation designs and manufactures several highly-flexible Digital Signal Simulators. These Simulators are organized for use as a

1. PCM SIMULATOR with broad format capability for calibration and trouble-shooting of Serial and Parallel PCM Data Systems.
2. TEST SIMULATOR for checkout of hi-frequency data transmission links.
3. LABORATORY INSTRUMENT for development and testing of high speed digital logic devices.
4. INTERFACE UNIT to simulate code forms and pulse levels.
5. WORD GENERATOR to test computing devices.

#### Summary Description:

Compact solid-state instrument.  
Format plus all features controlled by panel switches.  
DC to 1 MC bit rate. 2 to 33 bits per word.  
2 to 512 words per Frame. 2 to 128 Frames.  
5 unique words locatable in any word position.  
6 serial formats plus noise injection. 2 parallel formats.  
Plus or minus serial output at same time as + and - parallel outputs.  
Jitter, blanking, variable bandwidth filter simulate tape jitter,  
random coding errors, and limited-bandwidth transmission.



COMPUTER LOGIC CORPORATION

11800 OLYMPIC BLVD.  
LOS ANGELES 64, CALIF.  
GRANITE 9-3318  
BRADSHAW 2-2852

### DETAILED SPECIFICATIONS

#### BIT RATE:

Internal: 10 cps to 1 MC in 6 ranges with continuous vernier.  
External: DC to 1 MC square wave with 50% +10% duty cycle.  
Input rise time from negative to zero volts: 0.25 $\mu$ sec or faster.  
Input impedance: 5 K to 10 K region.  
Input logic levels: zero volts and -6 V min to -20 V max.  
Connector: BNC.  
Rate Jitter: (Simulates jitter of Tape Recorder) Internal bit rate can be varied 5% to 20% at a 60 cps rate; and OFF.

WORD CODING: Programmable in any digital code format; i.e. Binary, Any BCD, Hexadecimal, Octal, Excess 3, etc.  
(Set on miniature toggle switches with or without parity)

#### 5 DISTINCTIVE WORDS:

Main Frame Synchronization Word	(33 switches)
Main Frame Special Word	(33 switches)
Sub-Frame Synchronization Word	(33 switches)
Sub-Frame Special Word	(33 switches)
Common Word	(33 switches)

#### BITS PER WORD (WORD LENGTH) (Set by Thumbwheel Switches)

2 to 33 bits including parity; Main Special, Sub Special, and Common are set the same.  
2 to 33 bits including parity; Main Sync is set independently.  
2 to 33 bits including parity; Sub Sync is set independently.

WORD LOCATIONS: Main Sync and Main Special can be located separately by thumbwheel switches at any one Main word-time. Sub Sync and Sub Special can be located separately at any one Main word-time in any one Main Frame. Common word occurs automatically except at the locations specified for the 4 words above.

#### NUMBER OF MAIN WORDS (Main Frame Length)

2 to 512 words per Frame (Set by Thumbwheel Switches)

#### NUMBER OF MAIN FRAMES (Subcommutation Frame Length)

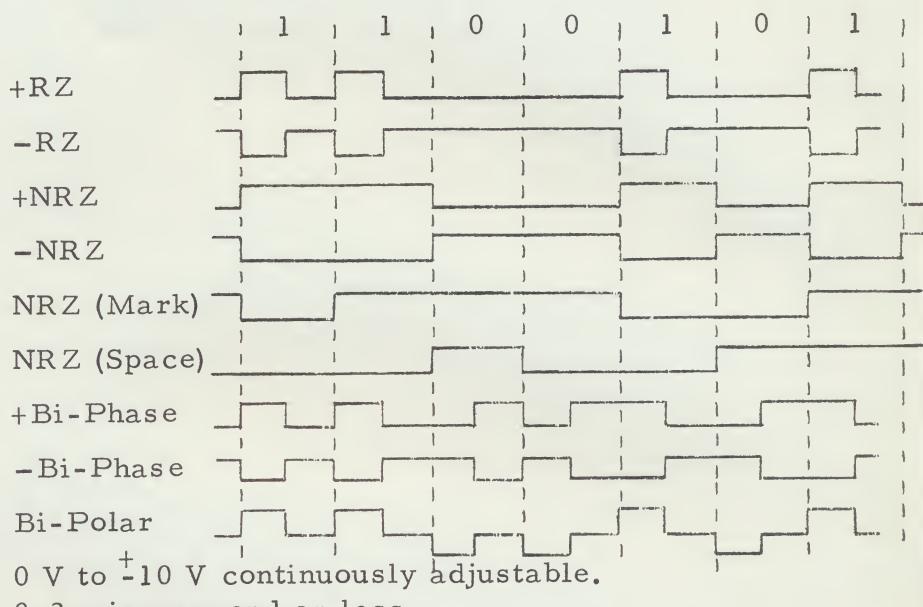
2 to 128 main frames per sub-comm Frame (Set by Thumbwheel Switches)

#### TOTAL WORD CAPACITY BEFORE PATTERN REPEATS

4 to 75,536 Words

SERIAL OUTPUT:

Selectable  
Formats:



Amplitude Control:

0 V to +10 V continuously adjustable.

Rise & Fall Times:

0.2 microsecond or less.

Output Impedance:

680 ohms to ground.

Variable Bandwidth Filter (Simulates Limited Transmission Bandwidth)

Switch Selectable plus Vernier for rise and  
fall times from 0.2  $\mu$ sec to tens of  $\mu$ sec.

Connector:

BNC.

CLOCK OUTPUTS:

Square wave clock at serial bit rate; BNC connector.

Square wave clock at parallel bit rate; pin 37 on 37-pin parallel connector.

NEGATIVE PARALLEL OUTPUT (Option A)

Selectable Formats: +RZ, -RZ, +NRZ (Space), -NRZ (Space)

Amplitude Control: 0 V to -10 V continuously adjustable

Rise & Fall Times: 0.2 microsecond or less

Output Impedance: 680 ohms to ground

Connector: One 37 pin Cannon for all 34 outputs, plus ground

POSITIVE PARALLEL OUTPUT (Option B)

Same as parallel output above except separately adjustable 0 V to +10 V,  
and available on separate 37 pin Cannon connector.

NOISE GENERATION (Option C)

Simulates operational noise conditions. Random white noise is op-  
erationally mixed into Serial Output. Vernier provides zero to about  
5 V p-p noise on all pulse levels, and on rise and fall times; and OFF.

RANDOM BLANKING (Option D)

Simulates Signal Drop-Outs. All outputs are held at zero volts for an  
adjustable period from 10  $\mu$ sec to 1 second. Manually initiated.

RANDOM CODING ERRORS (Option E)

Random noise injected into the Blanking circuit causes random coding errors of adjustable duration 10  $\mu$ sec to 1 second; and OFF.

MISSING WORDS (Option F)

Any number of Words may be blanked from a starting word position to an ending word position; or OFF.

PHYSICAL DESCRIPTION:

Size:	12-1/4 high x 19" wide panel; 18" deep, with chassis slides.
Weight:	Approximately 55 pounds.
Power:	117 V $\pm$ 10% rms single-phase 55 cps to 65 cps.
Circuits:	Entirely solid-state, plug-in modular cards of proven design.
Test Points:	14 test points on front panel provide important sync points and serial output.
Service Conditions:	0 F to 100 F and R. H. to 95%.
Manual:	2 copies operation and maintenance manual.

DELIVERY & PRICE RANGE:

Delivery is 60 days ARO. Prices range from \$7,700.00 to \$11,900.00 depending on options selected.

NOTE: Other PCM Instruments are available at lower prices with less capacity or flexibility, and other PDM or PAM Simulators down to \$2,200.00

PDM SIGNAL SIMULATOR

BRIEF SPECIFICATIONS

Model SS-20

PURPOSE OF THE EQUIPMENT

The Model SS-20 produces a serial pulse train which simulates a telemetry signal of PDM (Pulse Duration Modulation) nature. In telemetry, a FRAME (or Frame Length) means the number of pulses (or channels) which occur serially and uniquely before the frame (or pattern) repeats. The clock rate (or pulse rate) is usually 900 pulses per second. Zero information is represented by a unique minimum pulse width of 90  $\mu$ sec with a fixed amplitude. Full-scale information is represented by a unique maximum width of 660  $\mu$ sec with the same fixed amplitude. A 20% pulse means 20% of the difference between 660 and 90, or a value of 204  $\mu$ sec with the same fixed amplitude. Two channels usually contain a calibration zero and full-scale width respectively. Two other channels usually are unique (such as no pulse) to indicate the point-in-time between frames.

The Model SS-20 simulates all of the above features as follows:

- a. Frame Length: Selectable at 30, 45, or 90 channels
- b. Pulse Rate: 900 PPS  $\pm 15\%$  minimum
- c. Channel 1 Pulse: Adjustable from 10 to 700 microseconds
- d. Channel 2 Pulse: Adjustable from 10 to 700 microseconds
- e. Last 2 Channels: Blank = 0  $\pm 1/2$  V d-c level
- f. Balance of Channels: Selectable at 0%, 20%, 40%, 60%, 80% or 100%
- g. Interaction between Channels: Less than 1/2%
- h. Output Level: Adjustable from 0V to  $\pm 5$ V minimum
- i. Output Rise and Fall Times: Less than 1 microsecond
- j. Output Impedance: 500 ohms or less

Other PDM, PAM, or PCM Simulators are available in standard or custom models.

PDM SIGNAL SIMULATOR

PRELIMINARY RELEASE

Model SS-21

The SS-21 is a flexible PDM simulator for use in checking pulse-duration telemetry devices. It is a solid-state device constructed entirely from proven CLC logic cards. A panel-mounted removable patchboard allows the user to select frame length of 30, 45, or 90. By patching, any one of 8 pulse-durations may be assigned to any channel at any frame length.

Specifications and Description:

Model Number:

SS-21

Physical:

CLC MC-10 chassis 5-1/4" x 19" panel, 19-1/2 deep.  
With rack slides or instrument cover. Please specify.

Panel: Clear brushed aluminum, black lettering.

Weight: 25 pounds.

Power:

Self-contained requiring about 30 watts single-phase  
3-wire 60 cps, 115 V  $\pm 10\%$ . Power supply is  
solid-state and regulated to  $\pm 1\%$ .

Width Selection  
per Channel:

- a. Any 2 time-channels can be patched to produce variable widths separately adjustable between 70 and 700  $\mu$ sec by trim pots on one logic card.
- b. Any time-channel may be blank = off output level.
- c. All other channels may be patched to have any combination of widths selected from 0%, 20%, 40%, 60%, 80%, or 100%. Each of the 6 available widths are slightly adjustable. (0% = 90  $\mu$ sec, 100% = 660  $\mu$ sec).  
Front panel pot sets 900 pps  $\pm 10\%$ .

Clock Rate:

Front panel switch and pilot light.

Power On:

Off voltage level is 0 V  $\pm 1/2$  V.

Output:

On (PDM) level is +6 V  $\pm 1$  V.

Impedance less than 500  $\Omega$  either level.

(Special output levels upon request)

Price:

\$4,495.00

Delivery:

30 days ARO

Terms:

Net cash 30 days

Warranty:

90 days on material and workmanship